

# Jerry Zhu

New York, US

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## EDUCATION

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### Stony Brook University

Stony Brook, NY

*Bachelor of Science, Computer Science*

*August 2022 - May 2026*

- Coursework: Discrete Mathematics, Linear Algebra, Data Structures and Algorithms, Probability and Statistics
- Extracurriculars: Stony Brook Game Developers, Stony Brook Computing Society

## TECHNICAL SKILLS

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**Languages:** C++, C, C#, GLSL, Common Lisp, Scheme, Java, Python, JavaScript, TypeScript

**Libraries & Technologies:** SDL2, Win32 API, OpenGL & WebGL, Unity, Godot, MonoGame, Emscripten

**Developer Tools:** Git, Mercurial, Visual Studio, GDB, Valgrind, RenderDoc, Bash, Trello, Linux

## PROJECTS

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### Soul Walker | C#, Unity

April 2023

- Completed turn-based first person dungeon crawler for Dungeon Crawler Jam 2023 with 3 levels
- Developed a **raycast based movement system** with **sloped surface support**
- Designed a custom 'body possession' mechanic to follow the given jam theme 'duality'

### CrankLang | C++

March 2023 - Present

- Implemented a statically typed programming language with a **handwritten recursive descent parser** and compiler in **C++**
- Language supports **user-defined** record types, unions, enumerations and **multiple file inclusion**
- Compiles programs from an **abstract syntax tree** into **C++** code

### Legends | C, SDL2, Emscripten

June 2022 - Present

- Implemented a **SIMD** optimized **multithreaded** software renderer improving framerate by 200%
- Developed a **custom level editor**, **scripting language**, and save formats with **backwards compatibility**
- Implemented a **particle system**, **custom scripting language**, and **BFS based pathfinding** for entities
- Utilized **custom memory allocators** and **object pools** to eliminate allocations at runtime

### Ascension | C, SDL2

February 2022 - March 2022

- Implemented a **custom platformer physics engine** with support for **slopes** and **fixed timestep updates**
- Developed a **particle system** with support for **physics interactions**
- Implemented Hollow Knight inspired gameplay mechanics such as attack-bouncing, wall jumping and dashing

### 2D Game Framework | C, OpenGL, SDL2, Emscripten

July 2021 - October 2021

- Utilizes a **plugin system** with dynamic link libraries (DLLs) and a **custom build system**
- Implemented a **sprite batcher**, screen-based **sprite culling**, and custom **shader support**
- Designed a **glyph-cache** supporting **arbitrary Unicode text** with a fixed memory footprint
- Implemented development features such as a **Quake style debug console** and **hot reloadable assets**

## LEADERSHIP

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### Software Development Team Lead

February 2021 - September 2022

*The Environment Project*

*Queens, NY*

- Led the development of Recyclopeda, a custom wiki application with a **team of 4**
- Maintained and redesigned the organization **WordPress** website which reached **10K visitors**
- Authored the event page for the Flushing Meadows Corona Park clean-up which resulted in **111 participants**
- Managed collaboration through **GitHub** pull requests, **Trello**, and bi-weekly pair-programming meetings on **Zoom** and **VS-Code**